THE

VETERINARY JOURNAL

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FEBRUARY, 1923.

Editorials.

DISTEMPER RESEARCH FUND.

No one knows better than the members of the veterinary profession what ravages are wrought each year by that scourge of the canine world, the disease (or perhaps one should say, more correctly, that complication of diseases), termed "Distemper," and we plead no excuse for placing the undermentioned letter from the Editor of our contemporary, *The Field*, in the most prominent position in our editorial columns. For generations distemper has been the bane of the dog-breeder and dog-lover, and a baffling problem to the veterinary surgeon. No disease has more uncertainties, either in its course or in its sequelæ, and the experienced canine practitioner has learnt to always speak with caution when asked by an anxious client as to its possible termination. The man of experience knows that an apparently mild attack is often the most disappointing to deal with, and, at present, at all events, we have no certain means whereby we can ward off epilepsy, meningitis, chorea or paralysis. The complications of pneumonia, dysentery and diarrhœa, so difficult to control, and the excessive prostration which seems to accompany any and every form, are too well known to need comment ; and the contagiousness of the disease is a byword.

Numerous attempts have been made to discover prophylactic and curative agents, bacteriological and therapeutical, and many so called distemper cures are on the market, the use of most of them being only to obtain money for the vendor from the pocket of the distracted

owner of a valuable or favourite dog. In fact, it is extraordinary how gullible the public are, and one has only to read the columns of the Press to find the most wonderful advertisements which promise the unattainable. Many scientists and pathologists, medical and veterinary, have attempted to find the specific cause, and also to produce preventive and curative vaccines and sera, but up to now no reliable cure has been demonstrated.

During the past few years Phisalix in France, Lignières in South America, McGowan in Scotland, Monkton Copeman in England, and, more recently, Ferry in America, have all published treatises on the disease ; and within the past few months a most excellent compilation of the work done by these and other investigators has been brought under one cover in the shape of a book by Hamilton Kirk, entitled " Canine Distemper,"* but who is there bold enough to say that any of the sera, vaccines or much advertised " distemper cures " are of specific value ?

The appeal, therefore, for funds and moral support to *The Field* Distemper Research Fund cannot fall on deaf ears when placed before the veterinary profession, and we have no hesitation in asking that it shall receive our unqualified support. A Subscription list is started in another column.

The help of our profession will be one of the strongest steps in the ladder which we hope will lead to success, and we are gratified to note that the Medical Research Council (one of the most powerful and strongest scientific research bodies of the kind in Great Britain) have recognised this, in that the investigations are to be carried out under the immediate supervision of their Veterinary Pathologist, Mr. Basil Buxton, F.R.C.V.S., D.V.H., whose experience in this class of research has already brought him into prominence in connection with the recent work done on " Grass Sickness " or " Botulism " of the horse.

A considerable sum of money will be needed,† and the Distemper Research Council is fortunate in this respect in obtaining the keen support of Sir Theodore Cook, the well-known editor of *The Field* ; but it will rest with our profession to give their whole-hearted support in the shape of willingness to assist clinically and in every other possible direction. Perhaps, too, if success is the sequel to the investigation, the foundation may be laid for the cure of a number of other human and veterinary diseases at present classed as belonging to the " ultra-visible " group of viruses. Who knows ?

* " Canine Distemper," by Hamilton Kirk, M.R.C.V.S. Published by Baillière, Tindall & Cox, London.

†Any Subscriptions sent to the Editor of the " Veterinary Journal " will be acknowledged in our columns and forwarded to the " Field " Distemper Fund.

THE CAUSES OF DISTEMPER.

To the Editor of THE VETERINARY JOURNAL.

SIR,—From everyone who owns a dog of any kind we confidently ask encouragement and help in our attempt to discover the cause or causes of distemper, in order to arrive at the control or cure of the disease. The majority of the masters of hounds and the breeders of sporting dogs are, we know, ready to assist at once. But there are many thousands of other dog-owners who will gladly welcome the efforts initiated by the Editor of the *Field* with the full co-operation of the Medical Research Council. The complete investigations of a disease with a view to its prevention involves very considerable expenditure of both time and money. The former will no doubt try the patience of our supporters. Yet it is essential to success. The latter we hope to provide by this appeal. We propose, therefore, to ask that the financial assistance given us should be in the form of either one donation before March 1, 1923, or an annual subscription for at least three years, beginning on March 1, 1923. Such contributions should be sent at once to the credit of the "*Field* Distemper Fund," Messrs. Coutts & Co., 440, Strand, London, who will acknowledge their receipt. At the end of three years the position will be carefully reconsidered, and it will be decided whether any further subscriptions will be necessary or not.

But neither time nor money would alone suffice for the task before us. It needs trained and scientific workers in the phenomena both of human and animal disease, who are ready to devote their whole time to the laborious and delicate processes involved, and who are enabled to work among selected surroundings suitable to the necessities of their investigation. These essentials have been assured to us by the co-operation of the Medical Research Council and of their Farm Laboratory close to London, which is under the direction of a skilled veterinary pathologist. We have also been encouraged by promises of collaboration and assistance from France and the rest of Europe, and more particularly from the United States and the various Dominions of the British Empire. Individual research is by no means a novelty in the long history of distemper. But by the centralising of effort over so large an area, by the avoidance of overlapping, by the co-operation of the medical and veterinary professions, and by the wide extension of the material thus brought before our experts, we may justifiably hope for greater progress than has ever been made before.

We are informed that any advance in our knowledge of the causes of distemper will probably involve a similar advance in the power of controlling certain similar diseases in man. We welcome that possibility. But our first anxiety is to relieve the enormous amount of suffering and death in man's best friend, the dog. The direct loss caused by its ravages amounts to many millions in money alone; indirectly, it can scarcely be estimated, and that aspect of our labours needs no emphasis, for it will appeal to nearly everyone who has ever owned a dog at all. A bulletin of the progress made will be regularly issued to subscribers and the Press. Our Secretary will at any time be happy to send forms for private subscriptions to anyone who writes

to him. To-day we earnestly request that all those interested in our efforts will without delay post their cheques to Messrs. Coutts & Co., or, if you, sir, will kindly permit it, your readers might send smaller sums of any denomination from a shilling upwards to the Editor of this newspaper, who will be so good as to forward the total amount collected to our bankers, after acknowledging the details in these columns.

FOR "THE FIELD" DISTEMPER COUNCIL.
(*Signed*) BEAUFORT.
PORTLAND.
THEODORE A. COOK.

The full list of the Council is as follows :—

His Grace the Duke of Beaufort, J.P., D.L. ; His Grace the Duke of Portland, K.G., P.C., G.C.V.O., etc. ; The Rt. Hon. The Earl of Lonsdale ; The Rt. Hon. the Earl of Chesterfield, K.G., P.C., etc. ; the Rt. Hon. the Viscount Lascelles, D.S.O. ; the Rt. Hon. the Viscount Goschen of Hawkhurst, C.B.E. ; the Rt. Hon. Lord Willoughby de Broke ; the Rt. Hon. Lord Leconfield ; Col. the Rt. Hon. Lord Tweedmouth, C.M.G., D.S.O., M.V.O. ; the Rt. Hon. Lord Southampton, D.L. ; the Rt. Hon. Lord Stalbridge ; Sir Ray Lankester, M.A., LL.D., D.Sc., F.R.S. ; Major-General Sir David Bruce, K.C.B., D.Sc., F.R.S. ; Major-General Sir William B. Leishman, K.C.M.G., C.B., F.R.S. etc. ; Sir Walter Fletcher, K.B.E., D.Sc., M.D., F.R.S., etc. ; Sir Humphrey Rolleston, K.C.B., M.D., etc. ; Col. David Davies, M.P. ; George Lane Fox, Esq., M.P. ; The Hon. A. H. Holland Hibbert ; Edward E. Barclay, Esq. ; Professor C. J. Martin, C.M.G., D.Sc., F.R.S. ; Professor Frederick Hobday, C.M.G., F.R.C.V.S., F.R.S.E. ; Dr. H. Hammond-Smith, M.R.C.S., L.R.C.P. ; Captain H. Leeney, M.R.C.V.S. ; Sir Theodore Cook, Editor of the *Field*, Windsor House, Bream's Buildings, London, E.C.4. (Hon. Secretary).

Windsor House, Bream's Buildings,
London, E.C.4.

The Secretary, Master of Foxhounds Association, writes as follows :

"I am desired by the Committee of the Masters of Foxhounds Association, to inform you that they hear with great interest of the formation of a Council, presided over by His Grace the Duke the Beaufort, for research into the causes and cure of distemper, and they ask me to express their sympathy with efforts which should commend themselves to all Masters of Hounds in every country, and they have pleasure in subscribing the sum of £100 a year for three years to the funds.

"They would be glad to accept your invitation for two members, *viz.*, Lord Stalbridge and Mr. Edward Barclay, to serve on your Finance Committee.

"They wish you every success in the investigation.

"Yours, etc.

"(*Sgd.*) GEORGE EVANS.

"SIR THEODORE COOK,
"*The Field.*"

THE PAY OF THE INDIAN CIVIL VETERINARY DEPARTMENT.

As considerable attention has been directed recently in the veterinary professional journals to the inadequacy of the salaries of public appointments, including those of the Indian Civil Veterinary Department, a few notes on the actual cost of living in India may be of some interest to any young graduates who may intend to apply when vacancies occur.

The majority of officers of the I.C.V.D. are stationed in large towns, such as Bombay, Madras, Calcutta, Lahore, Karachi and Lucknow, in which the cost of living is very much higher than it is in the smaller stations. In most other departments, such as the Engineering, Police and Forest Services, an officer has a very good chance of getting a small station, for some years at any rate, where the cost of living is still comparatively low.

A bachelor recruit to the I.C.V.D. can exist in a large station, and no more, on his initial salary. He will not be able to keep a horse, shoot, or take much part in the usual social functions. A married man could not possibly exist even by living in rooms, and a house of his own is out of the question.

The following are the necessary expenses which a married man would incur in one of the cheapest of the larger towns :—House rent, Rs. 250 per mensem ; servants, Rs. 100 ; food, hire of furniture, lighting, Rs. 250 ; motor car and boy to clean it, Rs. 100 (or horse, trap and groom, Rs. 100) ; a total of Rs. 700 per mensem.

No account is taken of cost of clothes, amusements, clubs, doctor's fees in case of illness, an occasional change to a hill station, and provision for passages and fares when coming home on leave.

The figures given are the minimum. House rents in the larger stations in India are now exorbitant, and the accommodation which could be secured for Rs. 250 per mensem would be anything but palatial, and this is a very big consideration in a hot climate, where a large, airy bungalow adds greatly to one's comfort. Servants' wages are a heavy item. A certain number of servants is essential, as it is a case of "one man one job." Some form of conveyance is indispensable, and a motor car is as cheap to run as a horse and carriage. A man, and especially a married man, must belong to one or more clubs, as otherwise he will be out of it altogether, and will have little or no chance of meeting people in his own grade of society. An occasional stay in a hill station, preferably once a year in the hot weather, is essential for one's health, and this means the keeping up of two establishments for a time. A trip home every few years is necessary for the white man in India. Railway fares from an up-country station

to a port, and steamer passages home, are very heavy items, and they are not likely to be reduced much in the near future.

It may be, of course, that the Indian Government, for reasons of its own, does not desire white men to apply for these posts; at any rate, it would be folly for any professional man, who has nothing to live upon beyond his pay, to sign on for a period of years under the present conditions, and it is our duty in the professional press to warn all intending applicants of what they may expect if they "take on" any of these ill-paid appointments.

General Articles.

LA FOSSE (SENIOR) ON THE CONTROL OF HÆMORRHAGE IN OPERATIONS BY MEANS OF *LYCOPERDON GIGANTEUM.*

By Major-General SIR FREDERICK SMITH, K.C.M.G. C.B.,
Fellow and Hon. Associate Royal College of Veterinary Surgeons.

[In the course of my search through the veterinary literature of the past, I came across the following valuable paper. La Fosse's observations of 170 years ago appear to come under the head of "memorable things lost," and I am stimulated to republish them in consequence of a recent article by Sir Dyce Duckworth *"On the Value and Employment of Some Remedies now much Forgotten or Ignored."**]

On November 15, 1750, E. G. La Fosse, Veterinarian to the King of France, presented to the Academy of Sciences a paper entitled "*On a most speedy and infallible remedy to stop bleeding in large divided arteries without ligature.*"

This remedy was the application of the powder of a fungus commonly known as the "puff-ball," *Lycoperdon Gig.*, which acts in the most remarkable manner as a styptic. An account of the following experiments accompanied the report of La Fosse.

(1) He cut the temporal artery of the horse half way through and then applied the dust of the puff-ball with the palm of the hand; in twelve to fifteen minutes the bleeding stopped.

(2) He pricked an artery in the limb, dressed the spurting vessel with the dust, and hæmorrhage ceased.

(3) The fore-leg of a horse was amputated close to the thorax; the dust was applied to the stump and maintained in position by a piece of bladder; the bleeding ceased.

(4) The tail of a horse was amputated close to the body; the four arteries ceased to bleed under the action of *Lycoperdon.* La Fosse says that the arteries could be seen pulsating and forcing

* St. Bartholomew's Hospital Reports, Vol. lv, 1922.

blood right up to the plug which the dust had formed in the vessel. On the artery being subsequently examined, the plug was found to be cone-shaped, the base adherent to the mouth of the vessel, the point free in the lumen.

The Academy of Sciences appointed a Commission of two experts to verify these observations. Under their instructions La Fosse performed the following major operations :

(1) Amputation of the leg of the horse ten inches above the knee ; the powder was kept in contact with the stump by means of a piece of bladder. Three days later the case was destroyed, and the usual plugs found in the vessels.

(2) Amputation of the thigh of the horse ten inches above the ham. In this case the Commission endeavoured to stop the hæmorrhage by the application of *Armen. Bol.*, on the assumption that *Lycoperdon* acted mechanically. After two and a half hours this had to be discontinued in consequence of the hæmorrhage persisting. *Lycoperdon* was then applied by the hand to the bleeding surface ; at the end of six minutes the femoral artery was still slightly bleeding, but a pinch of the powder stopped it in four minutes. Three days later the vessels were examined post-mortem, and the usual cone-shaped plugs found.

(3) Amputation of the shoulder of the horse. The same good results were obtained in respect of hæmorrhage, but the case died 26 hours later, doubtless from surgical shock following on so extensive a mutilation.

The Commission decided that La Fosse had proved his case. They pointed out that *Lycoperdon* had long been known to stop minor bleeding, but had never previously been employed in the case of large arteries. They fixed the period required for *Lycoperdon* to act at six minutes.

In 1755 Joseph Warner, F.R.S., Surgeon, and James Parsons, F.R.S., Physician, communicated the observations of La Fosse to the Royal Society*. Curiously enough, there is nothing to show that either Warner or Parsons took advantage of La Fosse's discovery to introduce his practice into human surgery. The debased condition of the veterinary art in this country in 1755 is sufficient to account for no attempt being made by veterinary practitioners to employ *Lycoperdon*, even if by some chance they had ever heard of the experiments of La Fosse.

Never having seen *Lycoperdon*, I applied to the Secretary, Pharmaceutical Society, London, for information. He kindly informed me

* *Philosophical Transactions* Vol. 49.

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that it could be obtained from Messrs. Potter & Clarke, Drug Merchants, Artillery Lane, London, E., and I am greatly obliged to the firm for sending me a sample. It is in flaky, somewhat fibrous masses, which readily yield a powder on rubbing ; the colour is that of brown ochre ; the substance is so light that one puff-ball, though it will fill the pocket, weighs only four ounces.*

My days of surgical activity have passed, and I have no opportunity of testing this substance. Its value in veterinary surgery should be great, and it ought to replace the painful actual cautery which is still so commonly used as a hæmostatic. Though outside my province, it seems to me that it should form part of the soldier's first field dressing.

The method by which *Lycoperdon* acts is unknown and requires investigating ; that hæmorrhage from a vessel the size of the femoral artery of the horse should be controlled by this substance suggests that it acts on the muscle fibre in the wall of the artery.

I am indebted to Major Mattinson, M.C., Professor of *Materia Medica and Therapeutics*, Royal Veterinary College, London, for notes on *Lycoperdon* and several drawings of this and allied species of fungus.

HIGHLAND AND AGRICULTURAL SOCIETY OF SCOTLAND.

ANNUAL MEETING, JANUARY 10, 1923.

GRASS SICKNESS IN HORSES.

ABRIDGED STATEMENT BY DR. TOCHER,
of the University of Aberdeen.

PERHAPS I should mention that a summary of the work performed by myself and my co-workers on grass sickness was given at a meeting of the Scottish Branch of the National Veterinary Medical Association, held on December 15, at Perth. I understand that the paper and a full report of the discussion will appear in an early issue of the *Veterinary Record*.† The results of the investigation can be summarised in four brief statements.

(1) *Bacteriological Proof.*—The toxin-producing organism known as the bacillus botulinus was a constant organism in all the cases examined.

(2) *Proof by Production of the Disease.*—We have been able to reproduce the clinical symptoms and post-mortem appearances of grass sickness in small experimental animals, and also in horses by means of the toxin formed in "grass sickness" botulinus cultures. These clinical symptoms and post-mortem appearances are identical with those of botulism.

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* The price is 6d. per ounce, wholesale.
† *Veterinary Record*, February 3, 1923.

(3) *Serological Proof.*—The blood of all horses which have had grass sickness in the subacute form, and which were alive at the time the specimens were drawn, possessed the property of neutralising the toxic poison produced by the *b. botulinus* obtained from an external, that is to say, a non-grass-sickness source. If the disease is not botulism, this neutralisation and consequent protection to the animal could not have taken place.

(4) *Proof by prevention of the disease by inoculating horses with a botulinus mixture derived from a non-grass-sickness source.*

We have been able to protect horses against this disease to a very large extent by the administration of a toxin-antitoxin mixture or preventive serum, not prepared from "grass sickness" cultures, but prepared from known strains of the *b. botulinus* obtained from an external or non-grass-sickness source. The odds in favour of inoculation reducing the death rate are 1,750,000 to 1. If grass sickness is not identical with botulism, this reduction in the death rate by inoculation of a botulinus mixture from a non-grass-sickness source could not have occurred.

These results are, therefore, conclusive as proving that grass sickness is botulism. Horses should, therefore, be protected by the use of the preventive serum prepared by Mr. Buxton, F.R.C.V.S., D.V.H. A supply is now available on a commercial basis.

TRYPANOSOMA CRUZI (CHAGAS, 1909) IN LABORATORY ANIMALS IN THE REDUVID (*RHODNIUS PROLIXUS*), AND IN THE BED-BUG (*CIMEX LECTULARIUS*).

By ANDREW ROBERTSON, M.B., Ch.B.,

Assistant Director of Protozoology, London School of Tropical Medicine, Grocers' Research Scholar;

AND

MARJORIE J. TRIFFITT, B.Sc.,

Privy Council Research Student.

(1) Trypanosome form of the parasite as found in the peripheral blood of the vertebrate host.

(2) Crithidial forms as occasionally found in the dejecta of the insect host. These crithidial forms are not found so frequently in the dejecta of the bug as the trypanosome forms, and it is doubtful whether they are capable of producing an infection if injected into an experimental animal.

(3) Metacyclic trypanosome forms found in a smear of the dejecta of *Rhodnius prolixus*. These are the infective forms.

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(4) A bed-bug, *Cimex lectularius*, was given an infected feed on a young rat having the trypanosomes in its peripheral blood on March 14, 1922. On November 9, 1922, a smear of the dejecta of the bug was made, and this was found to show the metacyclic forms of the parasite. A young rat was inoculated intra-peritoneally at the same time with some of the dejecta and it developed the disease. The smear shown had the same metacyclic forms of the trypanosome as are found in the dejecta of *Rhodnius prolixus*.

(5) Section of the brain of a young rat which died of an infection with *T. cruzi*. Showed the oval, rounded or leishmania-like forms of the trypanosome.

(6) Section of the heart of a young rat. Numerous oval forms of *T. cruzi* were shown in the muscle fibres.

(7) Section of the leg muscles of a young rat. There was also a heavy infection in the muscle fibres in this situation, but not so heavy as in the heart muscle.

(8) *Rhodnius prolixus*. A fully-developed adult was shown.

(9) *Rhodnius prolixus*. This was a nymph shortly after the third moult.

(10) *Rhodnius prolixus*. Larval form just after the second moult.

(11) *Rhodnius prolixus*. Some specimens of the eggs of this reduvid.

A CASE OF *EIMERIA OXYSPORA* (DOBELL, 1919).

By J. G. THOMSON, M.A., M.B., Ch.B.,
Director of Protozoology, London School of Tropical Medicine;
AND
ANDREW ROBERTSON, M.B., Ch.B.,
Assistant Director of Protozoology, London School of Tropical Medicine, Grocers' Research Scholar.

Three oöcysts of this coccidian parasite of man were shown. The average diameter of the oöcysts was about 42, and the variation over all the oöcysts found in this case was between 36 and 5·25. The sporocysts varied between 30 and 32 in length and between 6 and 7 in width at the widest part. The sporozoites were rather difficult to measure accurately in this case, but nearly all fully-developed specimens were between 19 and 20 in length.

The first case of a human infection with this parasite was described by Dobell in 1919, the second by Broughton Alcock and Thomson in 1921, and the present case is the third.

Clinical Articles.

COLIC, WITH MUCH FLUID IN THE STOMACH.

By A. LINTON ROBERTSON, M.R.C.V.S.,
Arbroath.

Subject.—A year-old Clydesdale gelding.

History.—Horse had eaten his corn at mid-day, and in the afternoon was working in the potato-digger. About 4 p.m. he showed signs of pain and was unyoked and put into a loose-box, when he immediately lay down and rolled. As he was no better by 5 p.m. my services were requested.

Symptoms.—On arrival, about an hour later, I found the following symptoms :—Profuse perspiration, very anxious expression of the eye, very tympanitic, frequent eructations, and passage of small quantities of flatus. Temperature 102° F. Pulse at jaw imperceptible, so gave gr. i strychnine sulphate at once. Mucous membranes very injected. Rectal examination revealed bowels greatly distended, but no impaction or displacement, although the rectum clung to the arm as it does in cases of volvulus.

Prognosis.—Unfavourable.

Diagnosis and Treatment.—I asked if the horse had eaten any potato straws, and was told that he had not, and that this was his first turn in the potato field. He had nothing, not even a drink, after he had his mid-day feed. Diagnosis being still uncertain, I depended on the stomach tube to help me, but before doing so I pointed out the possibility of a ruptured stomach, as I didn't want to be blamed if this should be found post-mortem. As soon as the tube entered the stomach there was an escape of gas, which was easily heard all over the loose-box. When all the gas had escaped I filled the tube with tepid water in order to syphon off the contents of the stomach. To my surprise there was a steady flow for about 20 minutes of a liquid the colour and consistency of linseed oil, with a most offensive odour, *but there was no sign of food.* I estimated the quantity at about 10 gallons, but the farmer said there was far more. When the liquid had stopped running I gave ʒiss formalin, ½ lb. sodium chloride and ʒi chloral hydrate in a gallon of tepid water. As the animal was still very tympanitic, I punctured him and gave ʒi formalin in a quart of water per canula. I was then sure his last minute had come, as he fell down and trembled all over. This continued for a quarter of an hour. I was still unable to feel the pulse, so gave three-quarters of a bottle of whisky per stomach tube when the horse was lying ; also gr. i strychnine sulphate and gr. iv morphine and atropine (P. D. & Co.) hypodermically. Shortly afterwards I could feel the pulse, and as I

had another case to attend to I told the farmer to let me know early in the morning if the horse was still living.

I got word to say that he was still living, but was very dull and pained, but had a slight passage during the night, the fæces being quite normal.

When I went out I found the animal still tympanitic, so passed the stomach tube again, and got another surprise by a fluid the colour and consistency of bile, and quite odourless, coming away, and quite as much as the previous evening, *and then about a handful of corn.* This time the tube did not require filling. I gave another ʒiss formalin and ¼ lb. sodium chloride—Professor Imrie's favourite treatment for colic—in a gallon of water. I did not think it advisable to give any more than one gallon of water in case I caused the animal any distress.

That night the farmer informed me that the horse was much better, and next morning (Sunday) I saw him and pronounced him better. On the Wednesday he was working.

Where did the 20 gallons of liquid come from—the farmer said there would be 25 gallons at least—as there was no food mixed with it, and why the different colours—the smell of the first and none of the second ?

I am quite convinced that if it hadn't been for the stomach tube this case would have proved fatal.

CASTRATION OF A SINGLE CRYPTORCHID.

By T. M. INGLIS, M.R.C.V.S., J.P.,
Forfar.

Subject.—Clydesdale, rising three years' old.

History.—Near side testicle was said to have been removed when a yearling. Position of cicatrix uncertain, but decided to make the incision on off side. On entering the abdomen I found the cord stump, and then discovered I had been wrongly advised as to side. From the wound on this (off) side I explored for the missing testicle on the other side, and after a time I found a cord which I traced up towards the abdominal wall, but could find no evidence of a testicle. The cord was as tight as a fiddle-string, and appeared well fixed at each end.

I was inclined to think it might be possible that the missing testicle might be hidden in the canal, and decided to open the near side. I found a well-defined canal, but no signs of a testicle. I passed my hand into the abdomen again, but from the near side, and soon found the cord, but was still unable to locate the gland I was in search of. The cord appeared to go right through the peritoneum into the abdominal wall, and I was curious to know where it ended, as it was well in front of the inguinal canal. I withdrew my hand and forced

my fingers through the side of the canal towards the position where I discovered the cord entered the wall of the abdomen. After a time I managed to get my hand well advanced, and came across a substance that felt like a flattened gland. After breaking down a good deal of tissue I managed to grasp the substance and pull it back so that I could reach it with a knife. After much manipulation I cut into it and discovered a fairly well-developed testicle, which I removed with the écraseur.

I have come across testicles in young bulls outside the scrotum, but the cord was always found through the canal. This one I record did not appear to have ever been near the canal, and must have been developed in the wall of the abdomen where I found it.

I operated on this colt in consultation with Mr. Cunningham, M.R.C.V.S., Kirkcaldy.

UNUSUAL ARRANGEMENT OF LARGE ARTERIES OF HORSE'S HEAD.

By B. GORTON, M.R.C.V.S.,
Professor of Anatomy, Royal Veterinary College, London.

THE following cases of abnormality in position of large arteries in the head of the horse seem to be of sufficient interest to make them worthy of notice. Both cases were discovered in dissection ponies at the Royal Veterinary College, London, during the last three years.

The first case affected the left external carotid artery, the right-hand artery being quite normal. This left external carotid arose in the usual way as a terminal branch of the common carotid. The first part of its course was as usual, that is, it continued the direction of the parent trunk, but just within the vertical ramus of the mandible the artery turned ventrally instead of dorsally, and came into relation with the tendon of the occipito-mandibularis (stylo-maxillaris) muscle at the angle of the jaw. Here it turned away from the median plane to reach the lateral aspect of this muscle, and from this point it ascended vertically along the posterior border of the masseter muscle, covered by the thin anterior edge of the parotid gland. An inch and a half below and behind the temporo-mandibular joint the artery turned medially and divided into its two usual terminal branches, the internal maxillary and superficial temporal.

The branches given off were (in order) :—

1. Pharyngeal.
2. Lingual.
3. Inferior masseter.
4. External maxillary or facial.

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Though these collateral branches are not according to the usual plan, yet no great stress need be laid upon this fact, as organs are always supplied more or less directly from the nearest large artery.

The significance of this arrangement of this very important artery may be studied from two points of view, *viz.*, an anatomical or embryological and a surgical or clinical. Anatomically, of course, the aberration is interesting by itself, all departures from the so-called typical being obviously of value, if only to uphold the principle that the exception proves the rule. But apart from this there is the consideration of the probable cause of the alteration in position of the artery. The factor which seems to have been responsible for this alteration is the development of the occipito-mandibularis muscle. Normally this muscle is entirely lateral to the artery, but in the case under consideration it developed on the medial aspect of the artery, and during its growth it necessarily displaced the latter in such a way as to thrust it ventrally and laterally. The reason for this difference in the relationship between the artery and muscle in the embryo is beyond our knowledge.

From a surgical or clinical aspect the superficial course of the artery on the surface of the edge of the masseter is of interest. It caused the vessel to be in a position of great danger in accidents to this part of the horse's head. Also in surgical operations in this region its unexpected presence might lead to serious complications.

In the second case of abnormality the artery concerned was the right external maxillary, sub-maxillary or facial. The external carotid was as usual with regard to its course, but it gave origin to the external maxillary nearer its termination than is usually the case, actually at its point of emergence between the stylo-hyoidens muscle and the long cornu of the hyoid bone. The external maxillary then deviated obliquely across the posterior edge of the vertical ramus to reach the superficial surface of the masseter. It descended across this muscle to a point immediately in front of the angle of the jaw, and traversed the lower border of the mandible to reach the intermaxillary space, where it came into relationship with the parotid duct and the vein. Thence its course was normal. The lingual artery, which is typically the first branch of the external maxillary, arose separately from the external carotid, and gave off the pharyngeal artery.

Thus, as in the first example, there was upon the surface of the masseter muscle near the angle of the jaw, in an exposed position, a large vessel, the presence of which would not be expected by the surgeon and which was certainly prone to injury in quite unimportant accidents.

In each case the artery was well placed for taking the pulse.

SEVERE PELVIC FRACTURE AND COXO-FEMORAL LUXATION IN A COW.*

By PHILIP VINCENT, M.R.C.V.S.,
Romford.

On August 21, 1921, a practitioner received an urgent call to go and see a cow, the property of a farmer. This cow was five years old, and the evening before was quite well, but on the morning of the 21st was very lame indeed with her hind quarters. I made a rectal examination and found a slight deformity of the pelvis. I thought it might be a case of osteomalacia. This diagnosis was later confirmed. On the 21st I only told my client that I feared an incomplete coxo-femoral dislocation, but two days later I was called in again, when the cow was quite unable to rise. I again examined her *per rectum*, and found a fracture of the pelvis, which seemed to have taken place spontaneously. Seeing that the case was very serious, and as the cow was due to calve in 18 days, I advised the Caesarean operation. I cast the cow on her right side, secured her hind legs to a post and her fore legs to the manger, and then operated, being successful in removing a fine live heifer calf. The cow died soon after operation, and on making a post-mortem examination I found a comminuted fracture of neck of ileum and a simple fracture of ischium ; I also found a complete luxation of the coxo-femoral articulation, and a rupture of the round ligament.

MILK FEVER FOLLOWING ABORTION WITH RETAINED PLACENTA.

By W. E. ARMSTRONG, B.V.Sc., M.R.C.V.S., D.V.H.,
Wigton, Cumberland.

Cases of milk fever following abortion and retained after-birth are not very common, but I have had recently four cases of this description, and three of these belonging to one owner. All four cases were seen within two weeks, and all made good recoveries. Beyond the retained placenta and abortion the cases presented the symptoms usually seen in the complaint. The treatment was simple : Washing and drying the udder, boiling the teat syphon, inflation of the udder with air, making the cow comfortable, and the hypodermic injection of Sp. Eth. Nit. ʒii. The placenta was then removed, the uterus washed out, and a pessary consisting of iodoform and boric acid was inserted. In 12 hours after inflation all four cases were on their feet and moving about freely. Each made a good recovery.

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* Translated from *La Clinica Veterinaria*, October, 1922.

POISONING OF SHEEP BY SOLANUM CINEREUM.*

By SYDNEY DODD, F.R.C.V.S., D.V.Sc.,
Lecturer in Veterinary Pathology and Bacteriology, The University of Sydney, New South Wales.

EARLY during the present year Mr. Stock Inspector White, of Merriwa, forwarded a dried specimen of a plant, locally known as "wild tomato," to the Chief Inspector of Stock, Sydney, for the purpose of ascertaining what was known concerning it. The plant was suspected by a stock owner in the above district of causing, on more than one occasion, the death of a number of his sheep. A specimen had previously been sent to the Government Botanist (Mr. J. H. Maiden), who identified it as Solanum cinereum, and stated that it was a native plant, its popular name being "Narrawa Burr." It had spread a good deal during the past few years, and to such an extent that several shires had proclaimed it a noxious weed. He had no knowledge of its being poisonous to live stock, but suggested that, as it belonged to the Solanaceæ, which includes some undoubtedly poisonous species, veterinary opinion should be sought on the subject.

As a result of correspondence, after the experiments to be described had been completed, Mr. White stated that odd plants were to be found in the Merriwa district, but it is only on certain holdings that it is growing in any quantity, and here it is becoming somewhat of a pest. Prior to the above incident he had never heard of the plant being suspected of poisoning stock. Some sheep had at times died mysteriously, but death had usually been attributed to other plants, *e.g.*, Euphorbia Drummondi. Sheep do not feed willingly on the plant, rarely touching it when other food is available; but they will eat it when other food is scarce or dry. On the particular station whence arose the enquiry there was plenty of dry grass in the paddock where the deaths had occurred, together with a fair amount of Solanum cinereum. Only some of the sheep had been eating the fruits of the latter and nibbling at a few of the leaves. Numbers of sheep did not touch either fruits or leaves. The former are generally eaten ripe.

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* Read before the Royal Society of New South Wales, September 6, 1922.

BOTANICAL DESCRIPTION OF SOLANUM CINEREUM.

An erect undershrub, the branches and inflorescence stellate and tomentose. Prickles slender, numerous on the branches, leaves, inflorescence and calyces. Leaves petiolate, ovate or ovate-lanceolate, mostly acuminate more or less deeply sinnate-lobed or pinnatifid, 2 to 5 ins. long, green above and glabrous or sprinkled with a few minute stellate hairs. White underneath, with a soft stellate, often floccose tomentum. Flowers blue, rather large, in pedunculate racemes, often as long as the leaves. The pedicles at first short, much elongated in fruit. Calyx 3 to 4 lines long, somewhat enlarged after flowering, densely prickly, with acuminate lobes. Corolla nearly 1 inch diameter, with short, broad, acute lobes. Berry globular, $\frac{3}{4}$ to inch diameter.

S. semiarmatum has sometimes the aspect of this species, but is readily known by the small calyx with short teeth and without prickles, and by the more numerous, smaller flowers.—Bentham's "Flora Australiensis," Vol. IV, p. 460.

In the case causing the enquiry there were 1,100 sheep in a particular paddock, and of these 45 died. It was not known what time had elapsed between the first eating of the berries and the commencement of the mortality, but some sheep had been observed eating them two or three weeks before any dead sheep were found. Thirty sheep, however, died, apparently suddenly and quietly, within a few days of each other, from what appeared to the owner to be the result of eating the fruits of the plant later on identified as Solanum cinereum. The reasons for this conclusion were that the fruits had been eaten off plants growing in the paddock, and also, when being yarded, the sheep were again observed to do the same thing. The same class of sheep in an adjoining paddock had not touched either leaves or fruits of the plant and no deaths had occurred. The owner also considered that this occurrence presented the same features as were noticed in connection with some previous losses, and which he also thought to be due to the same plant.

In order to experimentally ascertain whether Solanum cinereum was toxic or not, Mr. White was requested to forward a consignment for that purpose. About 10 lbs. of the dried mature plant were received, each plant carrying many fruits, but the latter were also quite ripe and dried up. Although these had a far different appearance to the ripe, juicy fruits that the sheep had been feeding on, it was resolved to carry out some feeding experiments with them.

FEEDING EXPERIMENTS WITH S. CINEREUM.

Sheep No. 100. *Aged 2 years.*

Noon, May 15, 1922.—Administered by mouth 8 ozs. of solanum berries (dried), mashed up with water to form a pulp. The animal would not swallow the mixture voluntarily, but was made to take the lot by placing a little at a time in the mouth and waiting until it had been swallowed.

At 2 p.m., when the animal was inspected, it was apparently well. Having been called away for the afternoon, I left instructions that another dose might be given at 4 p.m. if necessary. The animal, however, died at 3.30 p.m., during my absence, 3½ hours after the fruits were administered.

Post-mortem examination was made next morning. There was some evidence of salivation and diarrhœa. The liver, kidneys, abomasum and intestines were deeply congested. A number of sub-endocardial hæmorrhages were present. No other lesions were seen.

Owing to the rather unsatisfactory conclusion of this experiment, it was resolved to repeat it, and in order to avoid any suggestion that death may have been hastened by some of the liquid going "the wrong way," it was decided to give the berries whole and free from water.

Sheep No. 101. *Aged 2 years.*

10 a.m., May 15, 1922.—Fed with 4 ozs. whole, dry berries (96 in number) of S. cinereum. The fruits were simply placed in the mouth of the animal, a few at a time. The mouth was lightly held until the animal had swallowed them. The result was negative, not the slightest sign of inconvenience being seen.

4 p.m., May 15, 1922.—Administered the same weight of dry, intact fruits (93 in number) in the same manner as at 10 a.m., making a total weight of 8 ozs. within six hours. The result was again negative.

In view of the above negative results, and the positive result obtained with sheep No. 100, although in one case the whole amount of fruits was given at one time, whilst in the other it was given in two lots with an interval of six hours, it was, for reasons to be discussed later, decided to give sheep No. 101 the total amount of 8 ozs. of berries emulsified in water. The following are the details :—

Noon, May 22, 1922.—Sheep No. 101 given by the mouth 8 ozs. of S. cinereum fruits (206 in number), mashed up with water, the emulsion forming a thick pulp.

2 p.m., May 22, 1922.—The animal, which normally was very wild, had now become very quiet and easy to handle without assistance. Respirations were stertorous and rather heaving. Temperature 103° F. Slight salivation, mucous membranes intensely congested. Fæces pultaceous.

4 p.m.—Temperature 104° F. Pulse 102 and bounding. Respirations 80 and heaving. Profuse salivation. Moderate dilatation of the pupils, mucous membranes cyanotic. A massive and pultaceous motion. Animal able to stand, but very weak, and easily pushed over. Perspiring freely. Some eructations of gas from the mouth.

7 p.m.—Animal dead. There had been some struggling at various intervals, and a profuse, fœtid diarrhœa prior to death. Death occurred seven hours after the administration of the berries.

Post-mortem examination was made next morning. The subcutaneous vessels and peripheral lymphatic glands were congested. About 100 c.c. of blood-stained, turbid liquid in the peritoneal cavity. The spleen showed a number of sub-capsular hæmorrhages. The liver was moderately and the kidneys intensely congested, the latter having a number of small hæmorrhages in the cortex. The mucous membrane of the abomasum and intestines was also greatly congested, with a considerable amount of mucus on the surface. The lungs were normal. Pericardium distended with a turbid, blood-stained liquid. Numerous sub-endocardial hæmorrhages.

REMARKS.

On account of the difficulty of administering the dried, intact fruits they were given in two lots of 4 ozs. each, with an interval of about six hours. The result, as noted, was negative.

Five days later the animal was given the same total amount of fruits, but this time they were emulsified in water, with the result that death took place in seven hours. The question arises, why should the berries, when eaten in the dry state, be apparently innocuous, whilst the same amount, when mashed up with water, cause death in such a short period? The probable explanation is that, when the fruits were given whole and dry they were swallowed in the ordinary way, without much preliminary mastication, and passed into the rumen. Here they would become mixed with the other contents of that portion of the stomach. When rumination took place the amount of fruits masticated, re-swallowed and passed on to the true digestive stomach would not only be non-lethal, but insufficient to cause any visible symptoms of poisoning. On the other hand, when the fruits were mashed up in water, only a little of the mash was found in the rumen post-mortem. Furthermore, all the liquid portion of the emulsion containing the soluble alkaloids would pass direct into the abomasum, etc. Consequently, as a lethal dose had reached that part of the alimentary tract where absorption would take place, death occurred rapidly.

Chemical analysis of the fruits is now being conducted by the Department of Agriculture. The result of this has not yet been made known. The clinical evidence, however, appears to indicate that the plant belongs to the Solanine group of the Solanaceæ rather than the atropine or nicotine groups, and that the glucosidal alkaloid Solanin is the principal active agent.

CONCLUSIONS.

The fruits of Solanum cinereum contain a poisonous principal, probably Solanin. If the fruits are eaten fresh and in sufficient quantity (at least 8 ozs., and this is not a large amount to ingest at one time) the soluble alkaloid passes directly into the abomasum and will cause death in a few hours. The chief symptoms of poisoning by this plant are salivation, perspiration, intense congestion of the visible mucous membranes, disordered cardiac, and respiratory actions and diarrhœa. In small amounts, however, the fruits do not apparently occasion any pronounced illness. The symptoms shown by the experimental animals, and the post-mortem findings, indicate that the principal active toxic agent is Solanin.

Dried fruits, even in poisonous amounts, do not produce any ill-effects unless a relatively large quantity be consumed.

A CASE OF GOAT SCABIES TRANSMITTED TO MAN.

By J. G. CATTELL, M.R.C.V.S.,
Late Indian Civil Veterinary Department.

In Baluchistan, on the North-West Frontier of India, goat keeping is an important industry. The animals depend for food entirely on grazing. Disease frequently causes serious losses amongst the flocks, the more important diseases being contagious pleuro-pneumonia, anthrax and scab.

It is only within recent years that the Civil Veterinary Department has been able to do anything for the treatment of scab by the introduction of dipping. Portable baths and a proprietary dip are used. At one outbreak near Quetta, in Baluchistan, the owners of scab infected goats were persuaded to have their animals treated by dipping. After the dipping operations were over the man in charge of the goats when grazing presented himself for treatment. His arms, chest and abdomen were covered with scabs, and the irritation of the skin was intense. Scrapings from the skin were examined microscopically, and acari (*sarcoptis scabei, var. capræ*) were found in large numbers. The man was advised to go to the nearest Government dispensary for treatment, but he refused to do so. He stated that he knew he had been infected from the animals under his charge, and had seen similar cases before. He had seen or heard of an outbreak of goat scab in which several dippings effected a cure after native methods of treatment had failed. Nothing would do him but dip, and he was thoroughly soaked in the dip which had been used for the goats. He was also given a supply of dip for further treatment and told how to use it.

A few months afterwards the man was seen, and he was quite cured of scab. He was very grateful for the treatment he had received. He said that the treatment was very severe, but very effective, as he had been bad for some time and the intense irritation gave him little rest. Apparently the dip used was rather too strong for the human skin, and the dip, together with the hot sun, had caused considerable blistering.

A CASE OF RABIES TRANSMITTED FROM DOG TO MAN IN INDIA.

By Major A. J. THOMPSON, M.R.C.V.S.,
Royal Army Veterinary Corps.

Rabies is common in India, and most veterinary officers are well aware of its dangers, but occasionally one is off one's guard, and the result is apt to be, as it was in the case I am about to relate, disastrous.

The official in question was a man of powerful physique, a very able and popular colleague of the Indian Civil Veterinary Department,

whose illness and terrible death cast a gloom at the time on the district in which he was stationed.

I had been asked to examine a fox-terrier belonging to an officer, who stated that he thought it had injured its throat with a bone, as it had been observed to be gulping and continually making ineffectual efforts to swallow.

Upon arrival I at once diagnosed the paralytic form of rabies, and I was then informed that my friend, Capt. ——, M.R.C.V.S., had seen it a short time before and had personally made a digital examination of the throat, without, however, finding any bone or foreign body.

I went at once to see him, and we discussed the case, I giving it as my emphatic opinion that the dog had rabies, and urging him to proceed at once to the Pasteur Institute at Kasauli for anti-rabic treatment in case he had had any abrasions on his hands. He did say at the time that he had rubbed the top off a pimple on his face shortly after handling the dog. Unluckily he was not convinced about the certainty of the diagnosis, and, as he was very busy with professional duties, he proceeded at once on a long round of district inspection which kept him away for about three weeks. Upon his return, as the dog had died, and was definitely pronounced to have been rabid, he was ordered by the Chief Commissioner to undergo the inoculation treatment, and went to Kasauli.

It was, however, too late to save him, for about a month after his return he became depressed, showing signs of paralysis of the throat and failing eyesight, and within a few days violent paroxysms set in and death occurred, consciousness remaining until the last.

I myself was bitten a few months later by a rabid spaniel dog, but underwent the anti-rabic inoculation treatment at once, and, as this occurred some fourteen years ago, I may consider that, thanks to the researches of Pasteur (who, by the way, although such a benefactor to man and animals, belonged neither to the medical nor the veterinary professions—or perhaps I should say that, as a scientist, we both claim him) I think I may now consider myself safe from the effects of the bite I then received.

A NOTE ON FOLLICULAR MANGE.

By HENRY TAYLOR, F.R.C.V.S.,

Member of the Board of Examiners to the Royal College of Veterinary Surgeons, Haywards Heath.

Some little time ago a cross-bred puppy, a few months old, was brought on account of some skin trouble on the head. This consisted of a somewhat circular patch denuded of hair, apparently without

much irritation, which, upon examination of a scraping under the microscope, proved to be follicular mange.

Shortly afterwards another puppy from another district came for treatment with a similar skin affection. Upon enquiry it was found to be one of the same litter as the former.

Neither responded readily to treatment, and the owners soon had them destroyed. Upon making enquiries some time later I ascertained that there were *nine* pups in the litter, and *every one* of them became affected with the same intractable skin disease. They had gone to various parts of the country. Some had been under treatment by veterinary surgeons, some by their owners, but all had met with a like fate, *i.e.*, had been destroyed.

The inference is, of course, that these puppies all became infected from their dam ; and last of all the mother came also, not to be examined for skin trouble, but for some other trivial complaint, and, curious to relate, there was not the slightest indication of any skin lesion whatever ; nor, according to the owner, had there ever been.

The above circumstance is not unique, but it will rank as a corroboration.

With respect to the treatment of this disease, Mr. James Peddie and myself, discussing the various remedies other than vaccine, came to the conclusion that a continental application, consisting of iodine dissolved in chloroform (about 1 of the former to 4 to 6 of the latter), was worthy of a trial. The chloroform would act as a fat solvent, perhaps as a parasiticide, and allow the iodine to act as a disinfectant to the organisms said to be present, and also to come into direct contact with the *demodex folliculorum.*

An opportunity lately occurred of putting their theories to an extended test, with the result that the disease was not even arrested, much less cured, which was very unsatisfactory.

A CASE OF INTUSSUSCEPTION IN A BULL-PUP.

By PETER THRALE, O.B.E., M.R.C.V.S.,
Croydon.

A MEDICAL friend rang me up to know if I would operate on his bull-puppy, aged three months, for intussusception, which he himself had diagnosed. I said that I would if he would bring it into hospital, provided he felt sure it was a case of intussusception. He said that of this he felt absolutely certain.

The puppy was very emaciated, and the doctor told me that it had on several occasions had prolapse of the rectum, and that he had replaced it ; also the puppy had been given a teaspoonful of

liquid petroleum for a week, and that very small quantities of liquid fæces had been passed.

As, upon examination, we could not feel the intussusception, I suggested that probably the bowel was prolapsed, through general weakness with worms as the probable cause, but the doctor still persisted that it was intussusception, and that the symptoms were precisely those met with in babies, and so I said that I would operate.

The puppy was placed on the operating table and chloroform administered ; this was taken splendidly. The abdomen was cleansed and painted with tincture of iodine.

A boiled towel was placed over the body of the patient, with an aperture cut in it over the seat of the operation. I made an incision of about an inch extending backward immediately behind the navel, cutting through the skin, fascia, abdominal muscle and peritoneum. I then proceeded to explore the abdominal cavity for the intussusception.

I could feel what I thought was kidney ; it was close up against the sub-lumbar muscles of the left side. I then proceeded to withdraw the small intestine through the opening and traced it along until I arrived at the spot which I had thought was kidney. I then tried to manipulate the intussusception through the opening made, but found great difficulty, as the enlargement seemed so rigid. I passed a neurectomy needle underneath the intussusception and managed at last to bring it to the surface.

The portion of bowel intussuscepted was the last part of the ileum and the whole of the cæcum, and was about four inches long. Reduction was fairly easy, but the part of the ileum which was inside the cæcum was very tightly fixed owing to the thickening of its walls, and had a small rupture of about half an inch, which was bleeding on its outer layer.

The rigidity of the wall of this part of the bowel no doubt accounted for the difficulty of getting the enlargement to the surface of the opening. Having reduced the intussusception, the bowel was replaced and the wound stitched in two layers, namely, muscle and skin. The stitches were removed in exactly a week, and the puppy made an uneventful recovery.

It is now five months old, in splendid condition, and making a very big dog.

The points of the case were, I think, peculiar, because in the first place I could not feel the intussusception by external manipulation owing to the fact that it was placed close up under the sub-lumbar muscles.

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A TREATMENT FOR DEMODECTIC SCABIES IN DOGS.

By H. C. GANGULY,
Bengal Civil Veterinary Service, Veterinary College, Calcutta.

In the *Veterinary Record* of May 31, 1913, there appeared a translation from "Munchener Tier. Woch.," in which Dr. Fischer, of Cilli, is reported to have succeeded in curing a protracted case of follicular mange by the local application of a mixture of tincture iodine, formaldehyde and sulphuric ether, preceded by the external application of benzine, with the result that a perfect cure resulted in six weeks.

The principle of the treatment was as follows:—The body was thoroughly lathered and the soap allowed to remain on the skin for about 24 hours, after which it was washed off with luke-warm water. The scabs and crusts were removed and the pustules pressed out. The skin was rubbed with benzine to remove the fat. Then a mixture of one hundred parts of tincture iodine and twenty parts each of formaldehyde and sulphuric ether was rubbed into the skin. This was repeated at first every fourth day and afterwards every seventh day; also baths of sulphurated potash were ordered.

The remedy advocated by Dr. Fischer was adopted at this College hospital in a few cases which were microscopically confirmed. The details are described below:—

Case 1.—A rough-coated fox terrier, belonging to a European lady, was admitted in a very bad state with a history of five months' previous illness. A week later the treatment was commenced, and after seven applications of the dressing, with an interval of four days, the dog practically recovered. Vegetable and iron tonics, with occasional doses of aperients, were prescribed during treatment to improve health. After the treatment the animal suffered from fits and drowsiness, which ended fatally within a few days.

Case 2.—A pedigree Irish terrier of a lady was ailing for several weeks from isolated patches of this form of mange on the back, forelimbs and face. As the owner was disinclined to leave her pet in the hospital the treatment was carried on by her at home with the medicine supplied. After four applications of the dressing on every seventh day the dog was said to have made a recovery, and since then no untoward result or recurrence was reported in this case.

Case 3.—A lady's Japanese lap dog was admitted in a fearful state of demodectic mange. He was so seriously affected that the disease had spread on every part of the body and the skin was cracked, forming into confluent channels emitting a sticky, viscid matter with a peculiar offensive smell. After about fifteen applications of the dressing within three months, at first on every fourth day, subsequently once a week, the case was cured, but the disease broke out again after a few

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weeks, which took another six weeks for six applications to get rid of it. Owing to the appearance of fits and drowsiness in the first case, which were supposed to have been due to formaline intoxication, Liqr. Ammon. Acet. in 20 minim doses at irregular intervals of three to five days was administered as an antidote during the second and third months of treatment to this, the third case. Subsequent to the first application of the dressing the skin in this animal became so raw and painful that it was thought to be cruel to continue the treatment any more. Boric acid powder for the whole of the second week of treatment was applied daily once with a view to resting the skin and healing up the sores. Though this dog evidently recovered from the severe cutaneous lesions, its skin over the affected areas showed little or no tendency to grow hair ; it got chapped, thickened and indurated, and the skeletal muscles atrophied, causing severe loss of flesh. Treatment was continued for seventeen weeks. Along with the healing of skin sores the respiration of the dog appeared to be long, deep and somewhat laboured, which, in conjunction apparently with other constitutional disturbances, caused the animal to succumb to their effects within three weeks after the treatment had been stopped.

Case 4.—A white terrier pup of about six months, the property of a European lady, on November 25, 1921, was sent to the College canine clinique to be treated for eczema. He had a rash on and around the skin of the head, and also on the fore and hind limbs without much depilation. On the day of admission material from this pup's skin was subjected to microscopic examination on suspicion of follicular mange ; the examination was negative. Next morning a few ripe pimples on the skin of the affected areas having made their appearance, the pup was sent to the laboratory for examination again, and the diagnosis this time was confirmed. Any number of parasites in different stages were discovered.

Consequently on November 27 treatment was begun. The pup's body was well lathered and the soap rubbed in with a brush, and subsequently he was let off in his cage to be thoroughly washed on the following morning again with tepid water. Before the pup could have more than two applications, and in deference to the wishes of his owner, he had to be destroyed without having had any further recourse to the treatment, although he seemed much improved in that short time.

Inference.—Although the treatment as suggested by Dr. Fischer, and followed as closely as possible in this clinique, is of undoubted value in the treatment, and even cure, of follicular mange in the dog, it must be recognised that it is drastic, and at times appears even cruel. At the same time the disease is a most persistent and incurable malady,

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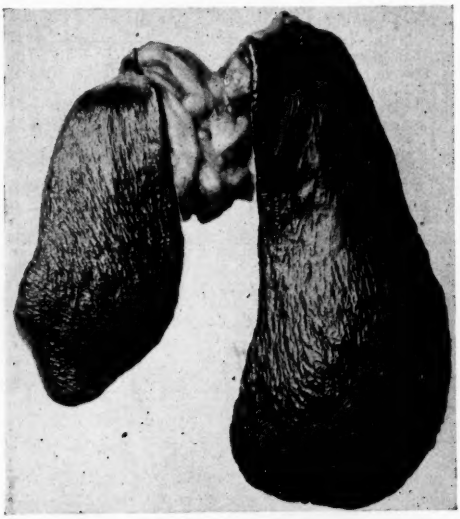
and, if ultimate relief is demanded, might be given a trial in the earlier and local stages of attack of the disease, although, perhaps, it is not advisable to attempt it in the more generalised and chronically affected.

A SUPERNUMERARY SPLEEN IN A DOG.

By H. C. GANGULY,
Bengal Civil Veterinary Service,
Laboratory Assistant, Veterinary College, Calcutta.

On October 17, 1922, while holding an autopsy in this College Laboratory on a young Aberdeen terrier dog, which died suddenly, a supernumerary spleen was found to be present beneath the liver in the right hypochondriac region extending partly into the epigastric. It was maintained in position by the omental membranes from the



neighbouring organs, and was also joined with the true spleen in the left hypochondriac by a band of fatty tissue. The blood supply was from the cœliac axis by a number of supernumerary capillaries.

This note will be read with interest in connection with a similar case in a cat found and described some 10 years ago by the late Mr. S. N. Mitter, of this College, in the Veterinary Journal of May, 1912.

The accompanying photograph illustrates the natural and comparative sizes of the spleens.

TWO INTERESTING URINARY CALCULI CASES IN CANINE PATIENTS.

By W. R. DAVIS, M.R.C.V.S.,
Enfield.

Case 1.—Recently I came across an interesting renal calculus in the right kidney when making a post-mortem examination on an old Irish terrier bitch. She was very fat, and had exhibited absolutely no symptoms of illness during her life. I destroyed her because within the last year or so she had become very bad tempered—she very nearly bit me when I attempted to put a lead on.

The right kidney was practically destroyed, and merely formed a capsule round the calculus, while the left kidney was greatly enlarged to fully five times the normal size. Its appearance suggested that it was quite normal in its tissue. The bladder had on its mucosa a great number of little hæmorrhagic areas, otherwise it was normal. The spleen was greatly changed, covered by little nodules, and in colour reddish-yellow. The remaining organs appeared to be healthy. It seems extraordinary to me that this bitch showed neither stiffness nor pain.

Case 2.—I removed a calculus by supra-pubic cystotomy from the bladder of a little Yorkshire terrier bitch, some months ago, that weighed 6 drachms. It was so tightly impacted in the neck of the bladder that I could not move it, and had to extend the incision towards the neck until I could get my finger in to push it out. She has done very well, in spite of a blunder of mine. There was a small mammary tumour, and, when suturing the skin wound, I removed it; the hæmorrhage was most unusual. A hematoma formed and suppurated, and for several days there was a gaping wound through which you could see the sutures in the abdominal muscle.

The patient eventually made an excellent recovery.

INGUINAL HERNIA, WITH UNUSUAL CONTENTS.

By Major F. J. TAYLOR, M.R.C.V.S.,
Bath.

Subject.—Pekinese light fawn bitch, 9 years old, of medium size.

Developed initial signs of inguinal hernia the size of a pigeon's egg after fighting, about four years ago. It appeared to cause no inconvenience; in fact, it did not prevent her jumping on chairs, and furiously fighting with other dogs.

I first saw and examined her on December 27 last, when the hernial sac was inflamed and distended. It was found impossible to return the contents, which were evidently causing discomfort, but not the acute pain indicating strangulation. A sedative and laxative treatment was adopted, which gave relief, but as the distension

again occurred in three days, and there was slight discolouration of the skin, I decided to operate, which I did under morphia and A.C.E. The area was prepared by dry shaving, rectified spirit and iodine.

On making an incision through the skin over the hernial sac (which measured 10 inches by 3 inches, and was situated on the left side and to the outside of the mammary glands, extending backwards to the perineal region) the whole sac was successfully separated and kept intact in view of a forlorn hope that the contents might still be returned, a ligature applied, and the sac amputated in the usual way. This was found impossible owing to fibrous thickening of the ring, which could not be dilated, and was too thick to incise, so that I proceeded to open the sac to view the contents, which were found to consist of :—The body and horns of the uterus, a loop of bowel, a large quantity of omentum and fat, and organised blood clots, one as large as a bantam's egg. In addition, the spleen was one of the contents of the sac, and this organ was very congested, strangulated in the centre, friable, and ruptured at one end, evidently having been partially strangulated with the uterus, etc., for a considerable period.

Ligaturing the body and horns of the uterus, the omentum, main vessels and attachments of the spleen, I removed them all, returning the loop of bowel and ligatured stumps to the abdominal cavity, placing a purse string suture round the ring and adjusting a large pad, stitching in position to support the main ligature.

The bitch is apparently recovering from the operation, and can now walk about and feeds fairly well ; all functions are normal, and she does not show any signs of having lost the organs mentioned ; this is the tenth day after operation. The question arises as to her future prospects, and how she will accommodate herself for the deficiency of the splenic organ, and I ask for information of previous cases of the kind if any reader will communicate same either to me direct or through the Press.

FRACTURE OF NECK OF FEMUR OF DOG.

By J. H. MASON, M.R.C.V.S.,
Glasgow.

Subject.—Fox terrier bitch, about eleven months' old when first seen.

History.—I first saw the animal in February of last year, and was informed that a month previously it had fallen from a window 10 ft. high.

Appearance and Symptoms.—The dog was lame in the right hind leg, and " carried " it continually. At the level of the hip joint there

was a hard bony swelling, which was accentuated by the wasting of the surrounding muscles. Evidence of pain was shown only when the enlargement was forcibly pressed, or when the limb was pulled or moved considerably. A " clicking " sound was heard when the leg was abducted, but no great reliance was placed on this as a diagnostic guide. I was informed that the dog had first shown signs of lameness about three weeks previously, and it was only after considerable questioning that I obtained the piece of information about the fall. As I was more or less at sea with the case, I asked the client to leave the animal for a day or two. During this interval I had the

leg *X*-rayed at the University of Glasgow, at which Institution every courtesy and consideration was shown to me. The plates cleared up the mystery. The swelling was the great trochanter of the femur, which had become more prominent by a fracture of the neck, allowing it to fall farther out. As union was seen to be taking place I decided to " treat," if such a word can be applied to what I did.

Treatment.—I applied pitch, while melted, to the skin over the affected area, with a view to producing some degree of immobility. I laid on enough to produce a fairly thick layer, and dabbed cotton-wool on the top to prevent the leg sticking to the floor or any article with which the animal might come in contact. I advised the client to keep the dog quiet and not allow it to jump off chairs or to do anything which might unduly move the limb.

Result.—I saw the animal for the last time about a month ago, when it had so far recovered as to be able to use the leg during pro-

gression. The trochanter was still prominent, but not nearly to the same degree as before. The muscles had considerably improved, and had some "tone" about them. I do not suppose the leg will ever become absolutely normal, but it has recovered to such an extent as to warrant my having kept the dog alive and for having done the little I did.

I am still puzzled at the delay between the presumed cause of the fracture (the fall) and the appearance of the symptoms. Perhaps some other veterinarian can supply the information. I also think we ought to make greater use of the *X*-rays, especially as there is usually one to be found in the hospital equipment at most of the infirmaries in our large towns, and our medical colleagues are usually ready in every way to assist and help.

PROLAPSE OF THE VAGINA IN THE BITCH.

By G. MAYALL, M.R.C.V.S.,
Bolton.

A PEDIGREE Pekinese bitch "Prudence" was brought to me early in December with about 4 inches of the vagina protruding. The posterior end of the prolapse was acutely inflamed, of a dirty reddish colour, and enveloped for about half an inch with bits of tightly imbedded hair from the animal's coat. The bitch had pupped two days previously (second litter), and was in rather a weak, low state. I got plenty of clean, warm water and a number of cotton-wool swabs, and made a solution of eophol (potassium iodophenate—Willows & Co.) and cleansed the protrusion and removed all the imbedded hair. I spent nearly half-an-hour clipping away all the soiled hair on the hind parts, and when I had made the hind end sweet and clean from all soiling I proceeded to think about ways and means to deal with the everted organ. I recognised the risk of returning into the passage tissue that seemed so much injured and infected, but the weak state of the bitch precluded to my mind much chance of recovery if amputation (which I have done several times) was performed. I therefore painted the injured and diseased parts with adrenalin and protargol solution and dredged the prolapse well all over with refined and powdered sugar from a pepper box. Standing the bitch up on her fore legs I then proceeded to return the prolapse, which was a matter of some difficulty owing to its swollen condition, but which I eventually did quite nicely with the help of a medium-sized wax candle. The idea of the sugar came to my mind from reading of its use in prolapse of the uterus in cattle, and remembering its utility in curing hams, and there is little doubt that the good result in this case was largely due to its use. Sugar is a therapeutic remedy which some text-books

entirely ignore. In two cases, however, I find mention of it. Finlay Dun states that "it is a domestic remedy for wounds . . . and its antiseptic properties recommend it for preserving soft animal substances." Bruce and Dilling write that, in *large* doses, it is given in "*myocardial weakness.*" Here, then, according to these two authorities it was indicated. The state of the vagina necessitated the use of a rather lasting antiseptic, and the weak condition of the bitch showed that a heart supporter would be useful. Knowing the tendency for prolapse to recur, I now gave one quarter of a grain of morphine sulphate hypodermically, my object being to give the bitch a good night's sleep and prevent straining. Next day her temperature was up to 105° F. and her pulse 120, but everything seemed clean and sweet at the posterior end. I inserted a pessary of half of one of Bayer's protargol sticks and got it well into the womb, standing the bitch on her fore legs again to do it. I then gave her a teaspoonful of medicinal paraffin, and sent a small bottle with her, with instructions to give her at least one teaspoonful daily. Two days after her temperature was down to 102° F., and she was eating semi-solid nutritious food. She has gone on well since, much to my surprise and gratification. I am afraid I shall become a sugar convert in these cases.

A CASE OF RABIES IN MAN CONTRACTED FROM THE POST-MORTEM ON A DOG.

By J. G. CATTELL, M.R.C.V.S.,
Late Indian Civil Veterinary Department.

In Mirpurkhas, Sind, in North-West India, the Indian veterinary assistant in charge of the local veterinary hospital attended several dogs belonging to residents of the place. All the dogs died, and, although rabies was diagnosed as the cause of death, the man made a post-mortem examination on one dog, and in so doing scratched one of his hands rather badly. He did not report the matter to his superior officers, and did not go to a Pasteur Institute for treatment. A few weeks after making the post-mortem the veterinary assistant became ill and suspected his illness to be due to rabies. A medical man was called in and diagnosed the disease as rabies. The unfortunate man lived only for a few days after he presented definite clinical symptoms of the disease.

Abstracts of Current Literature.

The Intradermal Tuberculin Test.—Annual Report of the Work of the Division of Veterinary Science, College of Agriculture, University of California, Agricultural Experiment Station, July 1, 1920, to June 30, 1921.

There are some interesting observations on the intradermal test in this Report. The time of the appearance of the local reaction is important. In a badly tuberculous herd of 670 animals, Traum and Lockett noted that a large percentage of adult cows will fail to react to the intradermal test at the 48th hour, but may react later, and that some few do not react until the 120th hour. The percentage of late reactors is not constant : in some herds it is small while in others it is considerable. In the young animals all reactions were definite at the first reading. For the best results with the intradermal test more than one reading should be made. If two readings are to be made the authors suggest that the first one be made between the 48th and 72nd hours, preferably about the 60th hour, and the second about 60 hours after the first reading. It is unnecessary to carry the second reading beyond the 120th hour. When one reading alone is possible, the results indicate that it be made between the 72nd and 96th hour.

Coccidiosis of Fowls.—In the same Report, Carpenter gives the result of an investigation he made on the comparative value of hydrochloric acid (half-ounce per gallon of water) and buttermilk for controlling coccidiosis of chicks. The disease was checked by either method in about the same time. The chicks given buttermilk, however, averaged at the finish about 1 lb. per dozen heavier than those given hydrochloric acid.

Januschke, E.—The Wattle Tuberculin Test in Fowls.—*Tierarztliches Archiv. Teil B, Heft* 12. *June* 15, 1922.

THE diagnostic tuberculin test in fowls consists in the intra (not sub-) cutaneous injection into the wattles of $\frac{1}{3}$ to 1-20 c.c. of an undiluted or 50 per cent. tuberculin. A reaction occurs in from 24-48 hours, and is shown by a plain and often simple increase of circumference of the wattle. Reacting birds are immediately destroyed and the house and utensils disinfected. Non- and doubtful reactors are tested again in from two to four weeks. From J.'s experience he considers that the tuberculin test is easily carried out and reliable, and suffices in a short time and at a small outlay to control outbreaks of tuberculosis in fowls. It gives a proper means of discovering tuberculous birds, and can be used effectively in flocks to prevent other domestic animals and men from infection with tuberculosis from them.

G. G. Heslop, D.S.O., D.V.Sc., D.V.H.—Further Researches into the Serological Diagnosis of Contagious Pleuro-Pneumonia of Cattle. *Royal Society of Victoria, issued May,* 1922.

Some research has been carried out on the above subject by Mr. Heslop, under the terms of the Walter and Eliza Hall Research Fellowship at Melbourne University. The object of the author's researches was to find out whether the complement fixation test for contagious pleuro-pneumonia could be made accurate and simple enough to warrant its general application as a diagnostic method, and whether certain extracts of tissue and culture possessed greater value as antigens for the test than the antigens previously used. It was found that results did not justify the adoption of the complement fixation test for diagnosis. It was not very accurate and could not be simplified. On the other hand, the agglutination test seemed to promise a more likely field for enterprise. It possessed a reliability and accuracy in reaction equal to, if not greater, than that of complement fixation. It provides a simple means for determining the presence of the disease, at least in the acute form, in the living animal. Although the number of positive sera tested was not large, 18 being from animals in which the disease was acute and 5 from subjects in which it was chronic, it would appear that the possibility of error in acute cases is not very great, owing to the well-marked differences in the end point values of sera taken from acute cases and those taken from animals free from the disease. In chronic cases the agglutination test does not give such certain results. Experiments have been conducted further to ascertain whether when a complement fixation result is obtained the reaction has been induced solely by the fact that the animal is affected with contagious pleuro-pneumonia. In one animal slaughtered, a positive complement fixation result was obtained, but no lesion of the disease could be discovered in the lungs of the animal supplying the test serum. Here the reaction might be a *group one for filterable viruses in general* and not absolutely specific for the filterable virus, causing contagious pleuro-pneumonia in cattle. Only two diseases of cattle in Australia are due to filterable viruses, *viz.*, cont. pleuro-pneu. and cow-pox. Samples of sera taken from a cow with cow-pox (stalled at the Veterinary School) were tested and were found to give positive complement fixation results with the contagious pleuro-pneumonia antigen.

Januschke, E.—Disease caused by Feeding on Rape Cake and Potato Tops.—*Tierarztliches Archiv. Teil B. Heft* 19, *October,* 1922.

This author states that several cattle fed on rape cake, developed abscesses and purulent degeneration in the muscular tissue of the head, neck and sides of the chest. Similar symptoms were also shown after feeding on green potato tops.

Colas.—Ovariotomy in Cattle.—*Rev. Gen. de Med. Vet.*

THIS operation is greatly favoured by breeders in South America. Colas gives an abstract of castrations of cows and heifers practised by Mr. Thomas Murtagh, of Buenos Aires. On 2,823 cows operated on the mortality was only 0.81 per cent. The operation involved no particular care ; it is quick (two per four minutes). Heifers are castrated at five to twelve months' old. Preparation for the operation is identical with that practised for cows ; a special apparatus supports the animal and prevents it from falling. Murtagh operates from one or other flank ; he prefers the left flank on account of the écraseur being easier to manipulate. The ovaries removed, he only puts one suture through the muscles and skin. Immediately after the operation the animal is set at liberty on the pasture. He has operated thus on 543 heifers without a single death.

From an economic point of view the operation for removal of the ovaries is attended with good results ; an increase of 10 per cent. in the sale price ; more rapid fattening, involving two to three months' economy in feeding ; prolongation of lactation for about six months. In France, ovariotomy in heifers ought to be forbidden : that of cows would be a very important factor of the growth of our resources in meat and milk. To avoid results of mishap due to accidents, recourse should be had to insurance.

Discussion.—M. Mousser : From an economic point of view castration of cows in France is wrong ; the operation ought to be limited to young bulls.

M. Bouchet : The conditions for operating are not the same in France as in the Argentine, where cattle have a rustic life unknown here. It would generally be advantageous to castrate aged cattle at the end of their reproductive career. G. M.

Galli-Valerio and Bornand.—Tuberculosis of the Cat of Bovine Origin.—*Revue Veterinaire.*

THE study of tuberculosis of the dog and cat is of great interest, not only from the point of view of comparative pathology, but also from that of the prophylaxis of tuberculosis of man and cattle, for if in the majority of cases, man and cattle are the cause of the infection of the dog and cat, these infected carnivora, living in contact with normal men and cattle, may in their turn infect them. Tuberculosis is probably more frequent than statistics indicate. At Lausanne, out of 100 autopsied cats, two were found to be tuberculous ; in these two cases the bacilli were of the bovine type. G. M.

Schweizer.—Spontaneous Rupture of the Uterus in Lionesses of the same Litter.—*Schweizer Archiv. f. T.*

Two lionesses both died of spontaneous rupture of the uterus and their bodies were sent to the Institute at Basel for examination. In both cases post-mortem revealed rupture of the cervix during pregnancy; hæmorrhagic peritonitis, and ascarides, and in the first case diffuse bronchiectasis and fatty liver in addition. Whilst in man the whole question of rupture of the uterus depends on the disproportion between the size of the fœtus and that of the genital passage, in veterinary obstetrics torsion of the uterus plays an even greater part. In these two cases neither the one nor the other factor seemed answerable for the rupture. S. considers that in the wall of the uterus in each instance there was a marked place of minor resistance. Cases have been recorded where degenerative changes in the elastic tissue of the uterus wall and even the act of vomiting have caused rupture of the uterus. There were no rachitic changes in the pelvis, which sometimes result through domestication.

Erismann.—Tumour with Marked Calcification in the Pleura Pulmonalis of the Horse.—*Schweizer Archiv. fur Tierheilkunde.*

E. MENTIONS that bony growths in the lungs have been described by Joest, Nelius, Christeller, Zschokke, as probably arising from inflammation of the lungs of men, cattle, goats, dog and wolf. Pollack has written a good deal about calcification and bone formation in the lungs of men. He believes that the deposits of chalk in the connective tissue tumours of the lungs are the precursors of time bone formation. In E.'s case a chronic inflammatory condition appeared to be the cause of the tumour. Primarily it appeared to be a connective tissue growth and secondarily it had in part become calcified. There was no sign of the tumour being due to sclerostomes, nor yet any indication it was the precursor of true bone formation, as declared by Pollack to be the case in man.

Zen-Ruffinen.—Causes of Disease in Suddenly Dying or Necessarily Slaughtered Swine.—*Schweizer Archiv. fur Tierheilkunde.*

THE author comments on the fact that little appears in veterinary literature on the problem of sudden deaths in animals and that the subject has not been sufficiently studied. At the veterinary pathological Institute in Bern, scarcely a day passes but what the owner of an animal wants to know the cause of its sudden death and whether it has been maliciously poisoned or injured.

Dealing entirely with swine, Z. R. puts down the fatalities to be due to swine erysipelas, schweinescuche, swine plague, anthrax, worms,

trammatisms and poisoning. Bacterioscopic examination of the organs of swine must be supplemented by cultural experiment, since the latter shows results which cannot be attained otherwise, and sometimes bacterioscopic and culture tests must be backed up by inoculation of experimental animals.

Swine plague is one of the diseases in which bacteriology helps us hardly at all. The anatomical appearances convince us. In certain cases, in which none of the three important infectious diseases of swine play a part, a further malady comes into operation, and that is verminous pneumonia. In quite young pigs trammatisms play a certain rôle. Post-mortems show that lung-worms and trammatisms are not often the causes of sudden death.

Velu.—Castration Standing.—*Revue Veterinaire.*

VELU sings the praises of the emasculator, especially for operating on mules and bulls, of which he has done some thousands. His procedure is rather different from that adopted in this country. In the mule he has the right hind leg pulled slightly forward by a side line, and with a twitch and bridle on takes up his position right behind and close up to the near hind leg and washes and antisepticises the serotal region, opens the scrotum by a bold incision and removes the testicles with the emasculator, which has been previously sterilised by boiling. In the bull, the animal is attached high and short, a figure of 8 rope put on, the tail firmly held and the operation done as in the mule.

Velu considers that the emasculator is most suitable for castrating standing in quiet animals (bulls and Morocco mules), but at the conclusion of his article he makes this significant remark: "In the bull, only one method is superior (to the emasculator), *i.e.*, castration standing by subcutaneous crushing of the cord with Evens' pincers." (Presumably these are similar to those of Burdizzi.)

Botulism in Animals.—In this same Report (College of Agriculture, University of California), Hart and Hayes give some notes on the results of experiments with botulinus toxin, and they state that a fatal dose of botulinus toxin produces symptoms in horses indistinguishable from those seen in natural outbreaks of forage poisoning. Spontaneous recoveries from botulism in chickens occurs even after symptoms are well marked. Recoveries after use of antitoxin in field cases can not be positively credited to the therapeutic value of the material. The field of usefulness of the antitoxin is limited to its prophylactic value when administered to animals on the same feed after one or more cases of the disease appear. The time for appearance of symptoms of botulism after giving the toxin depends on the size of the dose given,

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but after a fatal dose symptoms may not appear for five or six days or longer. In late developing cases, therefore, where there has been a preceding death, say in 24 hours (from a large dose of the toxin), there is time to give a dose of antitoxin which may prevent the fatal termination.

D. Wirth-Wien.—Periosteal Changes in the Skeleton in Tuberculosis of the Dog.—*Monatshefte f. prakt. Thkde. Vol. XXXIII, p.* 155).

In severe cases and generally in tuberculosis of the dog, symmetrical periosteal changes occur in the skeleton and also changes in the surrounding connective tissue. They are chiefly noticeable at the ends of the feet and often develop into a severe osteoporosis. They are analagous to the drum-stick fingers seen in man. This condition has hitherto only been noticed in dogs with cavernous formation or bronchiectasis on the lungs. These changes are therefore *of great diagnostic significance* in tuberculosis of the dog.

The pathological changes are not inflammatory, but of a hyperplastic nature and not due to toxin of t.b. but to purulent destruction of tissue.

Jung.—An Injectable Diuretic : Allyltheobromine. *Revue Veterinaire.*

The diuretics most used and least harmful are caffeine, theophylline, extract of tea-leaves, theocine and theobromine. They all produce diuresis and act simultaneously on the circulation by strengthening the systolic activity of the heart and on the kidney by dilating its vessels and directly increasing the secretory activity of the epithelium of the tubules. They all increasse the amount of urine and the quantity of chloride of sodium eliminated proportionately more than that of the other constituent elements of the urine.

Theobromine is the most powerful of them and is particularly useful in dropsies of cardiac or renal origin, acute nephritis, and chronic hyposystolic conditions due to retention of chlorides. Unfortunately this drug is practically insoluble in water (1 in 1,600) and it is thus unsuitable for hypodermic or intra-muscular use because only soluble in strongly alkaline and irritant substances such as diuretin and agurin, and besides, in some subjects it arouses marked symptoms of intolerance.

Allyltheobromine or theobryl has none of these defects. It is quite soluble : about 150 times more than that of the obromine in pure water, and much more so in the presence of benzoate of soda or lithia, with which it gives neutral and therefore injectable solutions. Experimentally allytheobromine has been proved to be a good heart tonic, vasodilator and analeptic. Small doses of the drug suppress paralysis

of the respiratory centres, brought about by morphine. Its diuretic action is more powerful than that of theobromine—2 centigrammes of theobryl being equal to 10 of theobromine. Diuresis, rapid at first, gradually ceases and gives place to oliguria. Its *toxicity* is very feeble. The toxic dose is 6 c.g. per kilo by the blood stream and 13 cg. subcutaneously.

Numerous *clinical observations* made on man show that in cases of chronic nephritis, ascites, hydrothorax, the drug is specially useful and quite well tolerated. This drug now easily injectable, ought to be very valuable in canine practice. It has a powerful and rapid action, is harmless, and thus constitutes one of the best agents to produce diuresis.

Immunity against Epizootic Abortions.—*La Clinica Veterinaria.*

THE vast researches conducted by A. A. began in 1911 and extended over 3,000 head, of which 1,650 were treated with five different vaccines, whilst 1,356 made use of control. The results of the whole were the following :—The total number of cases of abortion from 25.21 per cent., descended after vaccination to 15.15 per cent., in the same period in the animals of control, the cases of abortion from 16.31 per cent. and went up to 22.68 per cent. Now, there cannot be any doubt, that the vaccination had really diminished the percentage of abortions. For each single type of vaccine the diminution has the following :—In the vaccination with the dead culture, plus anti-abortion serum 21.76 per cent. to 13.60 per cent. In the vaccination with live culture, plus anti-abortion serum, 16.36 per cent. to 5.45 per cent. The passive immunity with serum only, gives results completely negative.

It seems that the artificial immunity established itself more easily in the adult animals, than in calves and animals not yet sexually developed. One can vaccinate without danger in whatever condition of pregnancy, either with killed culture or with living culture, together with anti-abortion serum. It seems also that pregnancy facilitates the formation of the anticorpi. Vaccinating with live culture, the A. A. can impede the repetition of the abortion in the cows which have already aborted. The duration of the immunity will differ also when using the same vaccine. For the practice the A. A. recommend the repetition of the vaccination for several consecutive years. The vaccine does not exercise any influence on the periods of œstrum nor any interference with conception. With the diminution of the cases of abortion they become, however, less frequent in cases of retention of the placenta and rarer in cases of nutritis with their consequences.

Illuminated Poultry Houses.—*Utility Poultry Journal.*

This journal, published by the Harper-Adams Agricultural College, Newport, Salop, contains some interesting tables showing the large increase in egg production that can be obtained by using illuminated poultry houses. A paper also appears in this journal describing certain research work conducted by Horace Atwood, of the West Virginia Experimental Station. The investigations were carried out to determine whether the ration fed to growing chicks affects (1) either the number or weight of the eggs laid by the females after they have arrived at sexual maturity; (2) the effect of the ration on the mature live weight of the females, and (3) the effect upon the age of the females when the first egg is laid. The fowls were divided into two lots. Both lots were fed the same basic grain ration. In addition to this lot A received a liberal supply of skim milk, while lot B was fed little milk. Lot A consumed more grain than lot B, and from the seventh to the fifteenth week lot A consumed practically twice as much grain per bird per week as in the case of lot B. At the seventh week the chickens fed the milk ration averaged twice as heavy as the others, and at the thirteenth week were almost three times as heavy, and although the difference later was not so marked it continued to the end.

From January 21 to December 1, there was a difference of about 34 eggs per bird in favour of lot A over lot B.

The conclusions arrived at were that the rate of gain in live weight and the mature weight of the females in the first year were greater in lot A than B. That sexual maturity and the laying of the first egg happened considerably earlier in A than B; that more eggs were laid by A than B in the first laying season. The average egg weight was less in B than A.

Rivers, O.—Breeding of Sheep for Export.—*Journal of the Department of Agriculture, Union of South Africa, October.*

Mr. O. Rivers, of the School of Agriculture, Potchefstroom, is of the opinion that South Africa can become a great source of mutton supply to other countries. The importation of suitable rams, the organisation of the sheep breeding industry, and some measure of Government support, are necessary steps to enable sheep supply to grow and flourish. South Africa at present has a total of 35,000,000 sheep, *i.e.*, far more sheep per head of populations than Australia had 40 years ago, and yet she exports none. Mr. Rivers puts in a plea for more attention to be paid to the breeding of sheep for the export trade. Without better breeds, management and means of

distribution prices to the farmers will sink so low that sheep breeding will become profitless. Sheep only keep at the present good price because of the enormous profits which are made by the people who handle them after they leave the sheep farms.

Review.

BACTERIOLOGISCHE DIAGNOSTIK DER TIERSEUCHE (Bacteriological Diagnosis of Animal Diseases); for Veterinary Surgeons and Students of Veterinary Medicine. By JACOB BONGERT, Professor and Director of the Institute for Dietetics at the Veterinary High School in Berlin. 6th Edition. Revised with 178 figures in the text and 8 coloured plates. Price 20 shillings. Richard Schoetz, Wilhelmstrasse 10, Berlin.

THIS is a standard German text-book, and is divided into three main portions dealing with general methods of discovering bacteria, a special part giving a short description of the most important bacteria of animal diseases, their chief clinical and pathologic-anatomical characteristics and bacteriological diagnosis, and a third section dealing with the pathogenic protozoa. The matter in the book covers a wide field and includes most of the complaints due to bacteria which the veterinary surgeon encounters in daily practice. Apparently where protective or curative inoculation against disease can be carried out and recommended it is mentioned. We note that no inoculation for distemper in the dog is advised, and we regret that as yet no research into the cause and cure of canine typhus is recorded. A very interesting chapter in the book, useful to both doctors and veterinary surgeons, is that on meat poisonings. The chief organisms found culpable are the paratyphus bacilli, bacillus enteritides Gaertner, bacillus botulinus and proteus vulgaris. It is a tribute to our country that research into botulism seems to have gone further with us than with the Germans. The only antitoxin prepared over there is a serum produced by Kempner and there is no record of it ever having been used. There are a few valuable pages on the chief diseased conditions found in animals which render their flesh especially dangerous for human consumption.

The printing, binding and get-up of the book are all admirable, and certainly give no evidence of poverty in the German publishing and printing trade as regards material and plant at any rate.

Personal.

THE profession will hear with pleasure of the appointment of Mr. Basil Buxton, F.R.C.V.S., D.V.H., as Veterinary Pathologist to the Medical Research Council. It is a Privy Council appointment, and, although somewhat tardy, it is at last a recognition of Veterinary Pathology; and Mr. Buxton, who has had a distinguished career in veterinary pathology, is to be congratulated on the step he has made for the

profession. His recent discoveries, in collaboration with Dr. Tocher, of Aberdeen, in connection with grass sickness (or botulism) of horses, has brought his name to the front in pathological science, but he is already well known to every member of the National Veterinary Association as its indefatigable and enthusiastic secretary—combining with these duties the Editorship of the *Veterinary Record*. His colleagues on the Medical Research Council include such well-known names as Sir Walter Fletcher, K.B.E., M.D., Capt. S. R. Douglas, M.R.C.S., F.R.S., late I.M.S. (pathologist), Dr. H. H. Dale, C.B.E., M.D., F.R.S. (director), Drs. Laidlow and Burne (physiologists), and Dr. Hartley (bio-chemist). Mr. Buxton's title is that of Superintendent of the Experimental Station at Mill Hill, and it is at this station that it is proposed to carry out the forthcoming investigation into distemper.

ABOUT twenty Temporary Research Scholarships, varying in value from £200 to £700 each, are granted by the Ministry of Health each year for investigations into disease and there is no reason why the veterinary graduate should not participate in these as much as the graduate of human medicine.

A MOST interesting and instructive lecture was recently delivered in the Royal Colonial Institute by Colonel Stordy, C.B.E., D.S.O., F.R.C.V.S., on "Peru's Potentialities as a Wool and Hair Producing Country." Col. Stordy, whose name will be remembered for good work done in East Africa before and during the war, is now the Chief Veterinary Adviser to the Government of Peru—an instance where this Government have acted sensibly, appointing a veterinarian to advise on veterinary matters, *i.e.*, the right man in the right place.

THE lectures on "Sanitary Duties and Meat Inspection" under the auspices of the Royal Sanitary Institute have commenced again those on "Meat Inspection" being, as before, delivered by Lieut.-Col. T. Dunlop-Young, O.B.E., F.R.C.V.S., D.V.S.M. (London), and Mr. Jas. R. Hayhurst, M.R.C.V.S., D.V.S.M. (Vict.). Veterinary students and members of the profession are at liberty to attend if they wish, and examinations are held periodically. Particulars can be obtained from the Secretary, Royal Sanitary Institute, 90, Buckingham Palace Road, London, S.W.

THE Ministry of Agriculture has offered £30,000 to found a Professorship of Animal Pathology as a first step towards the creation of an Institute at Cambridge for research into Animal Diseases.

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